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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/970,311	10/03/2001	Tom L. Davis	49581/P029US/10103788	9679

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DALLAS OFFICE OF FULBRIGHT & JAWORSKI L.L.P.
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EXAMINER

NGUYEN, DUC MINH

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/970,311

Applicant(s)

DAVIS ET AL.

Examiner

Duc Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 12, 13, 21, 22, 25, 26, 28, 33 and 34 is/are rejected.
- 7) ☒ Claim(s) 7-11, 14-20, 23, 24, 27, 29-32 and 35-37 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 6, 12-13, 21-22, 25-26, 28, 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown (4,646,036).

Consider claim 1. Brown teaches a system for providing linearized operation of a RF circuit, comprising a first transistor differential pair (40 and 47); a second transistor differential pair (48 and 55); a control signal input port (22); a first control signal output port (output of LPF 67-68 or the anode of PIN diode 15), wherein the first control signal output port is coupled to the control signal input port through the first transistor differential pair; a second control signal output port (output of LPF 70-71 or the anode of PIN diode 18), wherein the second control signal output port is coupled to the control signal input port through the second transistor differential pair.

Consider claim 6. Brown's Fig. 3 meets the limitations of this claim (the base of transistor 40).

Consider claim 12. Brown's Fig. 3 reads on the limitations of this claim (the first and second control signal outputs are derived by transistors 40, 47, 48 and 55).

Consider claim 13. Brown's Fig. 3 meets the limitations of this claim (the base of the transistor 55).

Consider claim 21. Brown's fig. 3 reads on the limitations of this claim (bipolar transistors).

Consider claim 22. Brown's fig. 3 does not show a MOSFET differential pair. However, it is well known to one skilled in the art to use FETs, MOSFETs in place of bipolar junction transistor in order to achieve faster switching, and low power consumption.

Consider claim 25. Brown teaches a system for providing linearized operation of a RF circuit, comprising a first transistor differential pair (40 and 47); a second transistor differential pair (48 and 55); a control signal input port (22); a first control signal output port (output of LPF 67-68 or the anode of PIN diode 15), wherein the first control signal output port is coupled to the control signal input port through the first transistor differential pair; a second control signal output port (output of LPF 70-71 or the anode of PIN diode 18), wherein the second control signal output port is coupled to the control signal input port through the second transistor differential pair. The series PIN diode bias current is met by PIN diode (15) and the shunt PIN diode bias current is met by PIN diode (18).

Consider claim 26. Brown's Fig. 3 meets the limitations of this claim (the base of transistor 40 and the base of the transistor 55).

Consider claim 28. Brown's Fig. 3 reads on the limitations of this claim (the first and second control signal outputs are derived by transistors 40, 47, 48 and 55).

Consider claim 33. Brown teaches a system for providing linearized operation of a RF circuit, comprising a first transistor differential pair (40 and 47); a second transistor differential pair (48 and 55); a control signal input port (22); a first control signal output port (output of LPF 67-68 or the anode of PIN diode 15), wherein the first control signal output port is coupled to the

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control signal input port through the first transistor differential pair; a second control signal output port (output of LPF 70-71 or the anode of PIN diode 18), wherein the second control signal output port is coupled to the control signal input port through the second transistor differential pair. The series PIN diode bias current is met by PIN diode (15) and the shunt PIN diode bias current is met by PIN diode (18) (e.g., the first and second control signal outputs are derived by transistors 40, 47, 48 and 55).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-5, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (4,646,036) in view of Gruneisen (6,091,299)

Consider claim 2. Brown does not clearly teach a PIN diode attenuator circuit providing decibel per volt linear gain control by the system.

Gruneisen teaches a PIN diode attenuator circuit providing decibel per volt linear gain control by the system (col. 5, ln. 66 to col. 6, ln. 15; fig. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Gruneisen into the teachings of Brown in order to provide a method and apparatus for linearizing the response of PIN diode attenuators that does not change slope with variations of temperature.

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Consider claim 3. The series PIN diode bias current is met by PIN diode (15).

Consider claim 4. The shunt PIN diode bias current is met by PIN diode (18).

Consider claim 5. Brown further teaches that the first and second output control signals cooperate to control the PIN diode attenuator circuit to provide an optimized impedance match (col. 5, ln. 55 to col. 6, ln. 6). Gruneisen further teaches providing an optimized impedance match over a dynamic attenuator range of at least 30dB (fig. 3, col. 5, ln. 66 to col. 6, ln. 15).

Consider claim 34. Gruneisen further teaches a PIN diode attenuator circuit providing decibel per volt linear gain control by the system (col. 5, ln. 66 to col. 6, ln. 15; fig. 3).

Allowable Subject Matter


5. Claims 7-11, 14-20, 23-24, 27, 29-32, 35-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Nguyen whose telephone number is 703-308-7527. The examiner can normally be reached on 6:00AM-2:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Duc Nguyen
Primary Examiner
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8/18/04